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Existing Weld Seam Recognition and Tracking Based on Sub Region Image Processing

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This paper proposes a new algorithm of weld seam recognition for existing weld seam tracking based on sub region neural network. The original images need to be reduced by half and transformed to gray image. Then each picture is divided into 96 small pictures. Sub region neural network of three layers is applied to each small picture. The identification of 96 sub pictures is synthetized to complete the weld seam recognition result of each image. Before training, 5000 samples are obtained in total and they are classified into two categories. 4000 sets of them are considered as training data and 1000 left are selected as testing data. Accuracy rate can reach 92% by adjusting the node number of hidden layer. Experimental results show that various types of weld seam have excellent performance. As a result, the new algorithm is very effective and has some advantages. Network structure is very simple. Moreover, less training time is requested. It is very significant that weld seam feature numbers remain unchanged although sub images are input of neural network.